Remove Non-Friable Asbestos

Course 10777

Product Code 5714

Publishing details:

Second Edition 2012

TAFE NSW Training and Education Support, Industry Skills Unit Orange and Granville

68 South Street

GRANVILLE NSW 2142

Telephone: (02) 9846 8101

Acknowledgement

TAFE NSW Hunter Institute

TAFE NSW Illawarra Institute

TAFE NSW North Coast Institute

TAFE NSW South Western Sydney Institute

TAFE NSW Sydney Institute

TAFE NSW Western Sydney Institute

Asbestos Industry Association of Queensland

References

How to Safely Remove Asbestos Code of Practice

ISBN 978 1 74218 989 5 © Copyright WorkCover NSW 0112

Disclaimer – Copyright

Every effort has been made to trace and acknowledge copyright. However, should any infringement have occurred, TAFE NSW Training and Education Support, Industry Skills Unit Orange and Granville extends an apology and invites copyright owners to contact them.

ISBN 978 1 74236 423 0

Contents

INTRODUCTION

This resource covers the process required to remove non-friable asbestos containing material (ACM). It includes preparing, containing and removing friable and non-friable ACM, decontamination and disposal requirements.

About Asbestos

Asbestos was the wonder building product of the post-World War 2 years; strong, light, durable, waterproof and fireproof, and a good insulator.

Between 1945 and 1980 in Australia, asbestos was widely used in the construction industry, as well as in shipyards, power stations, boiler makers and plumbing.

It was a staple of home building too – used in fibro cement, insulation, fireproofing, pipes, paint, floor coverings, ceiling tiles, and roofing materials.

Such was the local – and global demand – for asbestos that it was mined in Australia and exported.

Asbestos is highly toxic, causing a range of lung diseases, that are slow to develop but in many cases deadly. Inhaling the fibres can cause a fibrous stiffening and shrinking of the lung, as well as lung cancer, particularly the incurable, rapidly-growing lung cancer known as mesothelioma.

In the mid 1980's the Amphibole (brown and blue) asbestos group was banned. Since 31 December 2003, using all forms of asbestos has been banned.

1. Key Terms (Ref to Code of Practice Section 2)

Airborne asbestos means any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable fibres are counte d.

Asbestos means the asbestiform varieties of mineral silicates belonging to the serpentine or amphibole groups of rock forming minerals including actinolite asbestos, grunerite (or amosite) asbestos (brown), anthophyllite asbestos, chrysotile asbestos (white), crocidolite asbestos (blue), and tremolite asbestos.

Asbestos containing material (ACM) means any material or thing that, as part of its design, contains asbestos.

Asbestos-contaminated dust or debris (ACD) means dust or debris that has settled within a workplace and is (or assumed to be) contaminated with asbestos.

Asbestos-related work means work involving asbestos (other than asbestos removal work to which Part 8.7 of the WHS Regulations applies) that is permitted under the exceptions set out in regulation 419 (3), (4) and (5).

Asbestos removalist means a person conducting a business or undertaking who carries out asbestos removal work.

Asbestos removal work means:

- Work involving the removal of asbestos or ACM, or
- Class A asbestos removal work or Class B asbestos removal work as outlined in Division 8 of Part 7.3 of the WHS Regulations 2011.

2. Code of Practice is a suggested way of performing a particular task.

For example, "How to Safely Remove Asbestos" ISBN 978-642-33317-9 or WorkCover Catalogue number WC03561

Competent person in relation to carrying out clearance inspections and issuing clearance certificates means a person who is familiar with relevant asbestos industry practice, and holds a statement of attainment for the endorsed unit of competency for an asbestos assessor or a tertiary qualification in occupational health and safety, industrial hygiene, science, building, construction or environmental health. For all other purposes, competent person means a person who has acquired through training, qualification or experience, the knowledge and skills to carry out the task.

Exposure standard for asbestos is a respirable fibre level of 0.01fibres/ml of air measured in a person's breathing zone and expressed as a time weighted average fibre concentration calculated over an eight-hour working day and measured over a minimum period of four hours in accordance with:

(a) the Membrane Filter Method, or

(b) a method determined by the relevant regulator.

Friable asbestos means material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos.

GHS means Globally Harmonised System of Classification and Labelling of Chemicals.

Licensed asbestos assessor means a person who holds an asbestos assessor licence.

Licensed asbestos removalist means a person conducting a business or undertaking who is licensed under the WHS Regulations to carry out asbestos removal work.

Naturally occurring asbestos (NOA) means the natural geological occurrence of asbestos minerals found in association with geological deposits including rock, sediment or soil.

Non-friable asbestos means material containing asbestos that is not friable, including material containing asbestos fibres reinforced with a bonding compound.

Respirable asbestos means an asbestos fibre that:

(a) is less than 3 microns (µm) wide

(b) more than 5 microns (µm) long, and

(c) has a length to width ratio of more than 3:1.

TYPES OF ASBESTOS

Asbestos is the generic term for a number of fibrous silicate minerals. There are two major groups of asbestos:

- The serpentine group contains chrysotile, commonly known as white asbestos
- The amphibole group contains amosite (brown asbestos) and crocidolite (blue asbestos), as well as some other less common types, such as tremolite, actinolite and anthophyllite.

Serpentine Group

Chrysotile is the only form of asbestos that has been used commercially from the serpentine group. In the past, chrysotile has been used in the manufacture of:

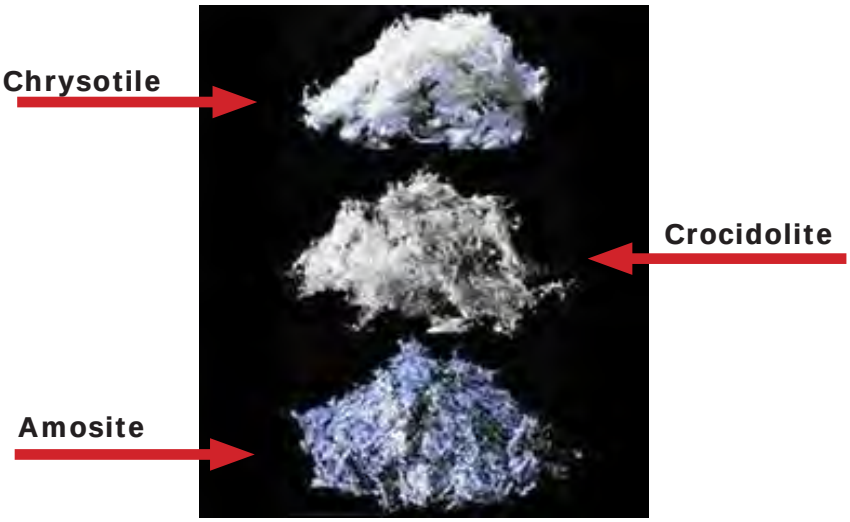
- Asbestos cloth, tapes, ropes and gaskets for packing, and in thermal and chemical insulation
- Asbestos cement sheets and pipes for construction, casing for water and electrical
- Telecommunication services
- Rubber, plastics, thermosetting resins, adhesives, paints, coatings, caulking compounds and sealants for thermal, electrical and insulation applications
- Fire-rated doors, equipment and structural beams of buildings
- Fillers and filters.

Until recently, chrysotile was used almost exclusively in the manufacture of packing and friction material, such as gaskets, and brake and clutch linings. **Take care that imported products do not contain any chrysotile asbestos.**

Amphibole Group

Until the early 1980s, amosite and crocidolite were used in many products but, in the mid 1980s, the use of all types of asbestos in the amphibole group was banned. The products included:

- Asbestos cement sheets and pipes for construction, casing for water and electrical
- Telecommunication services
- Thermal, acoustic and chemical insulation e.g. fire-rated doors, limpet spray, lagging and gaskets.



Under the law, asbestos-containing materials (ACMs) are divided into two types Friable and Non-Friable.

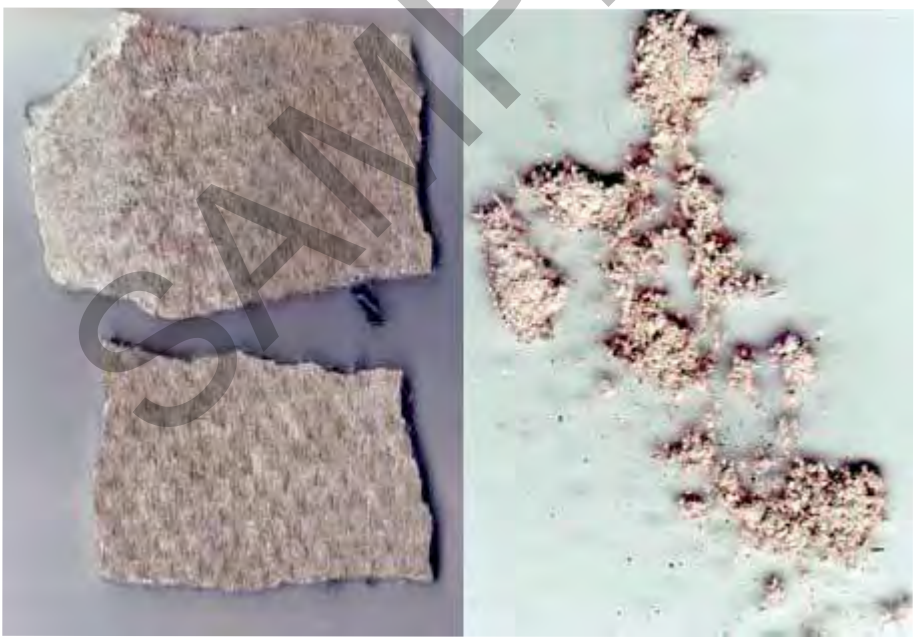
Non-Friable Asbestos (Class B)

Non-friable asbestos (also known as bonded asbestos) can be found in products such as asbestos cement sheeting commonly used in building materials between 1940s to the late 1980s.

Other non-friable asbestos products include:

- Profiled sheets used on roofs and walls and flat sheets in flashings
- Imitation brick cladding
- Roof shingles
- Water or flue pipes
- Plaster patching compounds
- Textured paint
- Vinyl floor tiles
- Friction products such as brake shoes, disc pads, clutch housings or elevator brakes.

Note: ACM listed as non-friable may become friable due to weathering, wear and tear, application of tools and equipment or accidental damage



Bonded Asbestos-Cement **Friable Pipe Lagging**

Friable Asbestos (Class A)

Friable asbestos is easily crumbled or reduced to powder by hand. Common forms of friable asbestos materials include:

- Sprayed on fireproofing/soundproofing/thermal insulation
- Acoustic plaster soundproofing
- Thermal insulation (not sprayed on).

WHERE IS ASBESTOS USED

Asbestos is a broad term for a group of naturally occurring minerals with a crystalline structure and fibrous character giving them properties of high tensile strength, resistance to high temperature and abrasion, high chemical resistance, and qualities of adhesion and cohesion.

- Asbestos cement wall cladding and lining material (AC Sheeting or Fibro)
- AC shingles, tiles and corrugated roof sheeting (Super 6)
- AC rainwater goods gutters, downpipes and flashing profiles
- AC laboratory bench tops and cabinets
- AC pipes and fittings
- AC cable trays and troughs
- AC decorative moldings and contoured sheeting
- Permanent formwork
- Expansion joints
- Fire rated compounds and putties for cable penetrations
- Asbestos papers, filters and gaskets
- Vinyl floor tiles and underlay papers
- Paints (Galbestos)
- Electrical switchboards/meter panels
- Roof area waterproof sheeting materials

Do you have asbestos at home?

Typical locations for the most common asbestos-containing materials around the home.

Roof and exterior walls

1. Roof sheets and tiles
2. Guttering and drainpipe
3. Wall cladding
4. Fascia boards
5. Panel beneath window
6. Coating to metal wall cladding

Pipework

7. Lagging on pipework
8. Damaged lagging and associated debris

Ceilings

9. Spray coating to ceiling, walls, beams/columns
10. Loose asbestos in ceiling/floor cavity
11. Tiles, slats, canopies and firebreaks above ceilings
12. Textured coatings and paints

Interior walls/panels

13. Loose asbestos inside partition walls
14. Partition walls
15. Panel beneath window
16. Panelling to vertical and horizontal beams
17. Panel behind electrical equipment
18. Panel behind/under heater
19. Panel on (or inside) fire door
20. Bath panel

Floor materials

21. Floor tiles, linoleum and paper backing, lining to suspended floor

Air handling systems

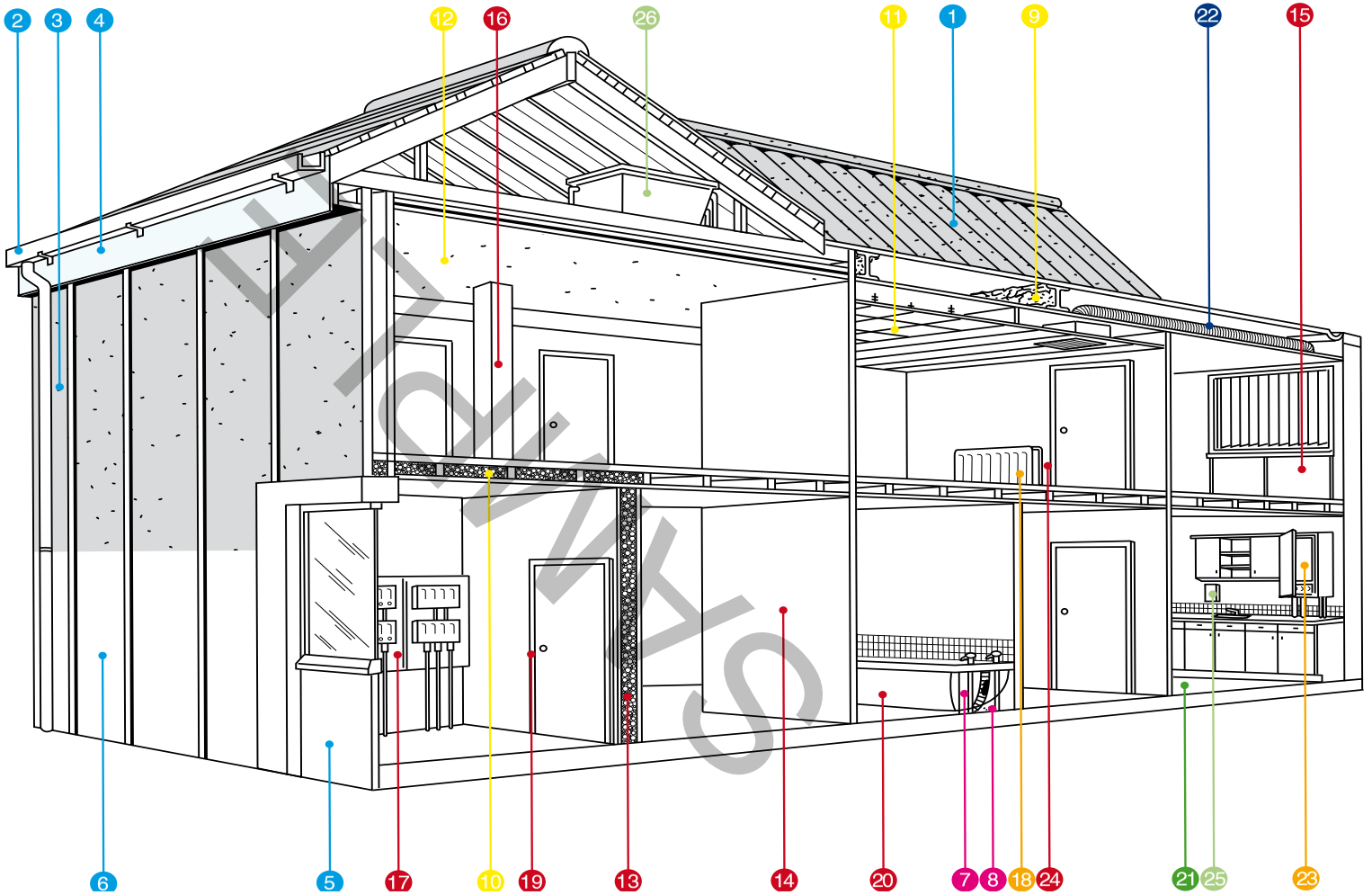
22. Lagging

Domestic appliances

23. Gaskets, rope seals and panels in domestic boilers
24. Insulating blocks, panels, paper, string etc. in domestic heater

Other

25. Fire blanket
26. Water tank



EFFECTS ON HEALTH

Asbestos is formed in fibre bundles and, as it is further processed or disturbed, the fibre bundles become progressively finer and more hazardous to health. **The small fibres are the most dangerous.**

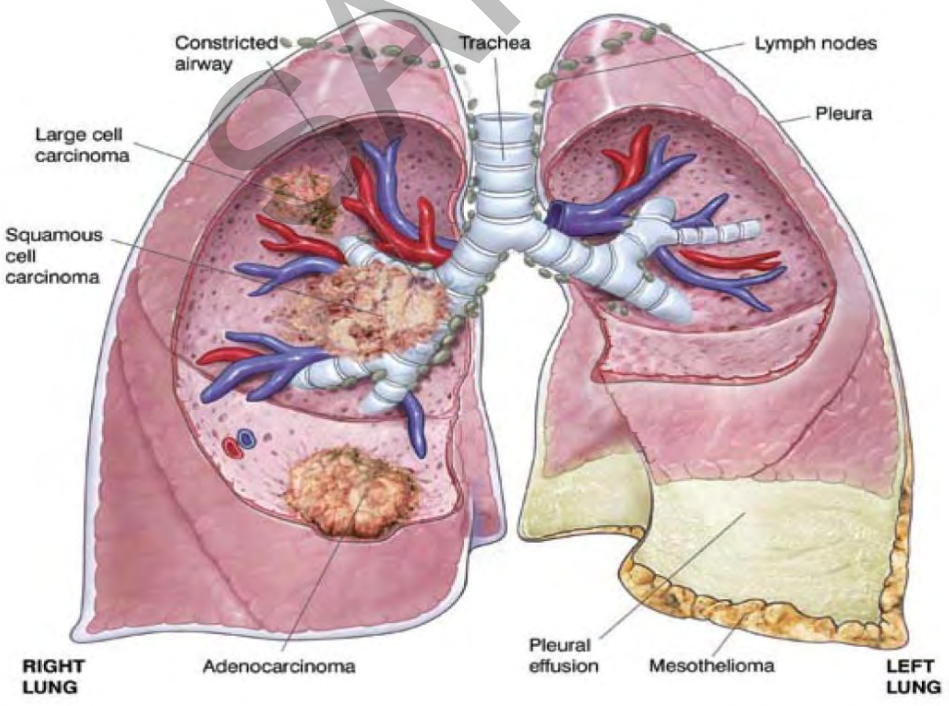
They are invisible to the naked eye and, when inhaled, penetrate the deepest part of the lungs (respirable fibres). Significant health risks may arise from the inhalation of airborne asbestos fibres. Compared with straight amphibole fibres, such as amosite and crocidolite, chrysotile fibres are curly and less likely to penetrate the deepest parts of the lung.

Breathing in fibres brings a risk of asbestosis, lung cancer and mesothelioma. Evidence suggests that asbestos causes gastrointestinal and laryngeal cancers in humans, but to a far lesser extent than lung cancer. Usually, asbestos-related diseases have a delay or latency period of 20 to 40 years between first exposure and the onset of symptoms and detection of the disease. Asbestos-related diseases can appear or progress even after a person is no longer exposed.

Asbestosis is the scarring of lung tissue that can result from the inhalation of substantial amounts of asbestos over a period of years. It results in breathlessness that may lead to disability and, in some cases, death. Minor changes in X-ray images may be detected for many years without any symptoms of asbestosis or progression of the disease.

Lung cancer is related to the amount of fibre that is breathed in and the risk of lung cancer is greatly increased in those who also smoke tobacco.

Lung Cancer and Mesothelioma



Mesothelioma is a cancer of the pleura (outer lung lining) or the peritoneum (the lining of the abdominal cavity). The risk of mesothelioma is less with chrysotile than with other types of asbestos. Both pleural and peritoneal mesothelioma can result from exposure to amosite and crocidolite.

Exposure of humans to chrysotile alone has caused few pleural mesotheliomas, and has never produced peritoneal mesothelioma without exposure to either amosite or crocidolite. **Mesothelioma rarely occurs in less than 15 years from first exposure, and most cases occur over 30 years after first exposure.**

As for many cancer-causing substances, no safe level of exposure for lung cancer or mesothelioma has been identified. However, the amount of asbestos fibre in the air that people inhale is the important factor in determining the level of health risk. The highest risks involve inhaling air that contains a high concentration of asbestos fibre.

Asbestos-related diseases have a devastating health effect and are often fatal as treatments are largely ineffective.

Health Monitoring Duties

The WHS Regulations require a person conducting a business or undertaking to ensure health monitoring is provided to a worker if they are carrying out licensed asbestos removal work, other ongoing asbestos removal work or asbestos-related work and is at risk of exposure to asbestos when carrying out the work.

Health monitoring includes a medical examination to provide an initial baseline medical assessment. The medical examination should be performed in accordance with the Guidance: Health Monitoring [under development].

Health monitoring must include the following (unless another form of health monitoring is recommended by a registered medical practitioner):

- Consideration of the worker's demographic, medical and occupational history
- Consideration of records of the worker's personal exposure, and
- A physical examination of the worker with emphasis on the respiratory system, including standardised respiratory function tests unless another form of health monitoring is recommended by a registered medical practitioner.

Workers must be informed of any health monitoring requirements before the worker carries out work that may expose them to asbestos.